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EXAMINER

WONG, EDNA

ART UNIT PAPER NUMBER

1753

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/712,458

Applicant(s)

FRANZ, WOLF-DIETER

Examiner

Edna Wong

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>November 13, 2003</u> . | 6) <input type="checkbox"/> Other: ____ |

Claim Objections

Claims 7-8 and 13 are objected to because of the following informalities:

Claim 7

line 2, it is suggested that the word "group" be amended to the word -- metals --.

Claim 8

line 2, the word -- of -- should be inserted after the word "range".

Claim 13

line 2, it is suggested that the word "wherein" be amended to the word --
comprising --.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1

lines 2-3, the preamble recites "A method of applying a metal coating to graphite". However, the body of the claim does not recite any step of applying the metal

coating to the graphite. Thus, the body of the claim is inconsistent with its preamble.

Claim 2

line 1, it appears that the following step is further limiting the method recited in claim 1, line 1. However, it is unclear if it is. If it is, then it is suggested that the word "comprising" be amended to the words -- further comprising --.

Claim 3

line 1, it appears that the following step is further limiting the method recited in claim 1, line 1. However, it is unclear if it is. If it is, then it is suggested that the word "comprising" be amended to the words -- further comprising --.

Claim 5

line 1, it appears that the following step is further limiting the method recited in claim 1, line 1. However, it is unclear if it is. If it is, then it is suggested that the word "comprising" be amended to the words -- further comprising --.

Claim 10

line 1, it appears that the solution of NaOH and/or KOH is further limiting the alkaline etchant recited in claim 1, line 2. However, it is unclear if it is. If it is, then it is suggested that the words "said anodic etching is done in" be amended to the words --

alkaline etchant is --.

Claim 13

line 2, it appears that "a method" is the same as that recited in claim 1, line 1. However, it is unclear if it is. If it is, then it is suggested that the word "a" be amended to the word -- said --.

line 2, it appears that "a metal coating" is the same as that recited in claim 1, line 1. However, it is unclear if it is. If it is, then it is suggested that the word "a" be amended to the word -- said --.

Claim 13

line 2, it appears that the "deposited" is the same as the electroplating recited in claim 1, line 3. However, it is unclear if it is. If it is not, then what is the difference between the deposited and the electroplating?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Herwig (US

Patent No. 2,547,120).

Herwig teaches a method of applying a metal coating (= chromium) to graphite (= graphite part) [col. 1, lines 1-4] comprising:

(a) anodic etching said graphite (= the carbon product is positively charged, while another pole immersed in the bath is negatively charged in relation thereto) in an alkaline etchant (= a water solution containing three ounces of sodium hydroxide (NaOH) and two ounces of sodium carbonate (Na₂CO₃) per gallon of water) [col. 1, line 46 to col. 2, line 15], and then

(b) electroplating said graphite (col. 2, lines 16-24).

The anodic etching is done in a solution of NaOH and/or KOH having a concentration (= a water solution containing three ounces of sodium hydroxide (NaOH) and two ounces of sodium carbonate (Na₂CO₃) per gallon of water) [col. 1, line 46 to col. 2, line 15].

Between said anodic etching and said electroplating no ultrasound treatment is implemented.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

I. Claims **5-11 and 14-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Herwig** (US Patent No. 2,547,120) as applied to claim 1 above.

Herwig is as applied above and incorporated herein.

The method of Herwig differs from the instant invention because Herwig does not disclose the following:

a. Between said anodic etching and a subsequent step: directly transferring said graphite, obtained with said anodic etching step, into water or a weak aqueous solution, as recited in claim 5.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by Herwig by directly transferring said graphite, obtained with said anodic etching step, into water or a weak aqueous solution because rinsing or washing the product with water would have prevented any residual solution on the graphite to carry over into the electroplating bath.

The reason or motivation to modify the reference may often suggest what the inventor has done, but for a different purpose or to solve a different problem. It is not necessary that the prior art suggest the combination to achieve the same advantage or result discovered by the Applicants. *In re Linter* 458 F.2d 1013, 173 USPQ 560 (CCPA 1972); *In re Dillon* 919 F.2d 688, 16 USPQ2d 1897 (Fed. Cir. 1990), *cert. denied*, 500 US 904 (1991); and MPEP § 2144.

b. Wherein said electroplating involves at least one of the following group:

Ag, Cu, Ni and Sn, as recited in claim 7.

The invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by Herwig with wherein said electroplating involves at least one of the following group: Ag, Cu, Ni and Sn because the substitution of one transition metal with another transition metal would have been functionally equivalent. MPEP 2144.09.

c. Wherein said electroplating utilizes a current density in the range 0.1 to 10 A/dm², as recited in claim 8.

Herwig teaches a short reverse current (col. 2, line 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by Herwig with wherein said electroplating utilizes a current density in the range 0.1 to 10 A/dm² because the short reverse current disclosed by Herwig inherently has a current density. Although not disclosed by Herwig, changes in the current density is not a patentable modification; however, such changes may impart patentability to a process if the ranges claimed produce new and unexpected results which are different in kind and not merely in degree from results of the prior art, such ranges are termed "critical" ranges and Applicant has the burden of proving such criticality; even though Applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within capabilities of one skilled in the art; more

particularly, where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. *In re Aller*, 220 F2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) and MPEP § 2144.05.

d. Wherein the current duration in said electroplating is in the range of 5 to 90 minutes, as recited in claim 9.

Herwig teaches a short reverse current clean for a few seconds of between 5 to 15 seconds (col. 2, lines 2-5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by Herwig with wherein the current duration in said electroplating is in the range of 5 to 90 minutes because changes in the current duration is not a patentable modification; however, such changes may impart patentability to a process if the ranges claimed produce new and unexpected results which are different in kind and not merely in degree from results of the prior art, such ranges are termed "critical" ranges and Applicant has the burden of proving such criticality; even though Applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within capabilities of one skilled in the art; more particularly, where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. *In re Aller*, 220 F2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) and MPEP § 2144.05.

e. Wherein the solution of NaOH and/or KOH has a concentration in the range 10 to 70% by weight, as recited in claim 10.

Herwig teaches a water solution containing three ounces of sodium hydroxide (NaOH) and two ounces of sodium carbonate (Na_2CO_3) per gallon of water (col. 1, line 46 to col. 2, line 15).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by Herwig with wherein the current duration in said electroplating is in the range of 5 to 90 minutes because changes in the concentration is not a patentable modification; however, such changes may impart patentability to a process if the ranges claimed produce new and unexpected results which are different in kind and not merely in degree from results of the prior art, such ranges are termed "critical" ranges and Applicant has the burden of proving such criticality; even though Applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within capabilities of one skilled in the art; more particularly, where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. *In re Aller*, 220 F2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) and MPEP § 2144.05.

f. Wherein said anodic etching is done at a temperature in the range 20°C to 70°C, as recited in claim 11.

Herwig teaches that the temperature of the bath should be maintained at 160°F (= 71.11°C).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by Herwig with wherein said anodic etching is done at a temperature in the range 20°C to 70°C because a difference of 1.11°C would not have significantly changed the performance of the alkaline etchant.

g. Wherein said anodic etching is performed with an applied electrical potential in the range of 4V to 20V, as recited in claim 14.

Herwig teaches a short reverse current (col. 2, line 2).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by Herwig with wherein said anodic etching is performed with an applied electrical potential in the range of 4V to 20V because the short reverse current disclosed by Herwig inherently has a voltage. Although not disclosed by Herwig, changes in the voltage is not a patentable modification; however, such changes may impart patentability to a process if the ranges claimed produce new and unexpected results which are different in kind and not merely in degree from results of the prior art, such ranges are termed "critical" ranges and Applicant has the burden of proving such criticality; even though Applicant's modification results in great improvement and utility over the prior art, it may still not be

patentable if the modification was within capabilities of one skilled in the art; more particularly, where general conditions of the claim are disclosed in the prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. *In re Aller*, 220 F2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) and MPEP § 2144.05.

h. Wherein said anodic etching has a duration in the range of 5 to 90 minutes, with the actual duration being inversely proportional to the applied electrical potential, as recited in claim 15.

Herwig teaches a short reverse current clean for a few seconds of between 5 to 15 seconds (col. 2, lines 2-5).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by Herwig with wherein said anodic etching has a duration in the range of 5 to 90 minutes, with the actual duration being inversely proportional to the applied electrical potential because changes in the anodic etching duration is not a patentable modification; however, such changes may impart patentability to a process if the ranges claimed produce new and unexpected results which are different in kind and not merely in degree from results of the prior art, such ranges are termed "critical" ranges and Applicant has the burden of proving such criticality; even though Applicant's modification results in great improvement and utility over the prior art, it may still not be patentable if the modification was within capabilities of one skilled in the art; more particularly, where general

conditions of the claim are disclosed in the prior art, it is not inventive to discover optimum or workable ranges by routine experimentation. *In re Aller*, 220 F2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) and MPEP § 2144.05.

II. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Herwig** (US Patent No. 2,547,120) as applied to claim 1 above, and further in view of **DE 35 39 318** ('318).

Herwig is as applied above and incorporated herein.

The method of Herwig differs from the instant invention because Herwig does not disclose the following:

a. Wherein said graphite comprises graphite particles bound by plastics, as recited in claim 12.

Herwig teaches carbon and graphite products such as electrical brushes, bearings, liners, bushings, resistors, washers and seals (col. 1, lines 5-9).

DE '318 teaches resistors comprising a film made of plastic admixed with electrically conductive particles such as soot, graphite and/or metal (abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by Herwig with wherein said graphite comprises graphite particles bound by plastics because products such as resistors would have conventionally comprised graphite particles bound by plastics as taught by DE '318 (abstract).

b. Applying a solder pad to said metal coating as thus produced, as recited in claim 13.

Herwig teaches carbon and graphite products such as electrical brushes, bearings, liners, bushings, resistors, washers and seals (col. 1, lines 5-9).

DE '318 teaches applying terminals made of solderable material to individual resistors (abstract).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by Herwig by applying a solder pad to said metal coating as thus produced because products such as resistors would have conventionally comprised solderable material which would have allowed electrical components to be attached to the resistor.

Furthermore, it has been held that the selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination. MPEP § 2144.07.

Allowable Subject Matter

The following is a statement of reasons for the indication of allowable subject matter:

Claims 2-4 define over the prior art of record because the prior art does not teach or suggest the method as set forth in claim 1, comprising the following step between said anodic etching and said electroplating: Pd seeding said graphite.

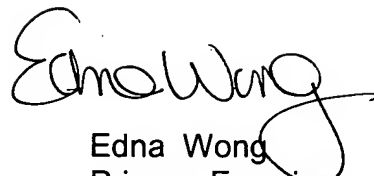
The prior art does not contain any language that teaches or suggests the above. Herwig does not teach Pd seeding the graphite. Therefore, a person skilled in the art would not have been motivated to adopt the above conditions, and a prima facie case of obviousness cannot be established.

Claims 2-4 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Edna Wong
Primary Examiner
Art Unit 1753

EW
September 12, 2005